

# **TRAINING OUTLINE**

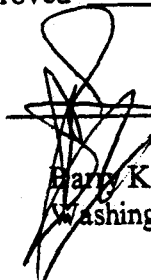
for

## **ALCO-SENSOR III (PBT) TECHNICIAN**

Approved

3/9/99

By

  
Barry K. Logan, Ph.D.  
Washington State Toxicologist

Prepared By

Washington State Patrol Breath Test Section

## LESSON PLAN

### BASIC COURSE FOR ALCO-SENSOR III (PBT) TECHNICIAN

March 1999

Prepared by Washington State Patrol  
Breath Test Section

To be presented in 4 hours.

#### INSTRUCTIONAL OBJECTIVES:

1. To understand the legal support and use of the PBT in the context of DUI enforcement.
2. To understand the theory of the operation of the Alco-Sensor III PBT instrument.
3. To qualify the student initially as a qualified PBT Operator prior to the PBT Technician training.
4. To learn how to diagnose and repair some common problems encountered with the PBT.
5. To learn how to test the PBT for accuracy according to the methods approved by the State Toxicologist.
6. To understand the theory and operation of the gas standard devices which contain known alcohol standards and are used for testing the PBT instruments.
7. To learn how to retain records regarding the regular testing of PBT instruments.
8. To understand the role of the PBT technician in the total DUI enforcement program.
9. Successfully complete a written exam. (80% minimum)

#### TRAINING AIDS:

1. White/Black board.
2. PBT instruments with gas standard equipment and simulators.

3. PBT white tube mouthpieces and clear saliva trap mouthpieces.
4. Extra 9 volt batteries.
5. Digital multimeter.
6. Forms for entering PBT test record results.

#### EXAMINATION:

1. Written exam - 80%.

#### PRE - INSTRUCTION:

1. Have a class roster filled out.
2. This course is designed to train the student to perform the periodic testing of PBT instruments as required in the Washington Administrative Code to allow for their admissibility as probable cause devices.
3. Successful completion of the course will qualify the student to test and perform minor repairs to the Alco-Sensor III PBT instruments.
4. The student's permit card will show their status as a PBT Technician.
5. The student must already be a qualified PBT operator

#### I. INTRODUCTION

- A. The Washington Administrative Code now allows for the use of the Alco-Sensor PBT device as a screening probable cause test
- B. In order for the police officer to use the PBT results the WAC's require that the instruments be periodically tested by qualified PBT Technicians

- C. You will be trained in the theory and operation of the PBT instrument along with how and when to test them and the associated records to keep
- D. You will need to test the PBT instruments at least every 6 months. You may test them more often. An operator may bring one to you for testing if its use will be critical in a particular case.

## II. ALCO-SENSOR III Pre-Arrest Breath Test Instrument Operation (PBT)

### A. Introduction

- 1. The PBT can be a very useful tool for establishing probable cause to arrest for DUI
- 2. The PBT can also be useful for enforcing "minor in possession" laws
- 3. The PBT is not the evidential breath alcohol test under the implied consent statute since it is voluntary and typically performed prior to arrest
- 4. Although many agencies have been using these instruments they have recently been approved in the Washington Administrative Code for probable cause purposes.
- 5. Only the AlcoSensor III PBT instrument is approved in the Washington Administrative Code. If your agency uses a different PBT instrument you must contact the State Toxicology Laboratory to determine its acceptability for use.
- 6. Following your successful completion of this course you will be qualified operators of both the BAC Datamaster and the AlcoSensor III PBT. Refresher classes will renew your operator status with regard to both instruments.

### B. Nomenclature

- 1. Temperature display
- 2. Set button
- 3. Read button
- 4. Digital display
- 5. Breath intake port

6. Breath intake port - this is easily broken off and care must be taken when attaching and removing mouthpieces

7. Mouthpiece

- a. Mouthpiece arrangement - white tube mouthpiece and clear saliva trap mouthpiece or straight white with one-way valve or straight white and clear with saliva trap

C. Theory of Operation

- 1. The instrument uses a fuel cell to detect and quantify ethyl alcohol
- 2. The fuel cell oxidizes the alcohol which releases electrons available for an electrical current flow that is proportional to the concentration of alcohol
- 3. The current flow is measured and becomes an index of alcohol concentration
- 4. The results are shown on a digital display

D. Current case law prohibits the use of the PBT for legal purposes. The State Toxicologist has indicated that the PBT will be approved as a screening device, intending that it will be admissible in probable cause hearings.

E. Steps of Operation

1. Preliminary Considerations

- a. Usually the last test administered along the roadside
- b. After determining the subject's willingness to do the test, the question must be asked: A Have you consumed any alcohol in the last fifteen minutes?≡
- c. If subject acknowledges alcohol consumption in the last fifteen minutes then a test should not be administered unless willing to wait fifteen minutes. This may not be practical and the decision to arrest will need to be based on other information.
  - i. The purpose of the 15 minute wait is to guard against mouth alcohol
  - ii. Might look for open containers in vehicle to corroborate subject's statement about drinking or not drinking within last 15 minutes and make a note of it

2. Check the temperature display - should be 20-36<sup>0</sup> C
3. Push the "Set" button
4. Push and hold the "Read" button and confirm that the displayed results go down to 0.003 or less and remain there. If not, push the "Set" button again and then push and hold the "Read" button. You may have to wait a few minutes for this to be accomplished.
5. Push the "Set" button
6. Attach the mouthpiece in one of the following configurations:
  - a. Attach the clear saliva trap mouthpiece to the straight tube white mouthpiece. Next, attach the straight white mouthpiece to the instrument receptacle. Have the clear saliva trap mouthpiece facing to the opposite side of the instrument display.
  - b. Attach the straight white mouthpiece with one-way valve in the proper direction so that the breath will flow in the proper direction. Reversing the direction will mean that the subject will not be able to exhale into the mouthpiece.
  - c. Demonstrate these configurations to the students.
  - d. Use plastic bags when handling (attaching, removing and disposing of) mouthpieces.
7. Have subject blow and attempt to get at least a 5 second sample. While the subject is still blowing press the "Read" button. This will obtain that last sample of breath. Keep subject at a safe distance and remember officer safety issues. Monitor air flow with back of hand to ensure subject does not suck back (this will not be necessary if using a mouthpiece with a one-way valve).
8. Keep the "Read" button depressed and observe the displayed result until the peak value is obtained. This may take up to 45 seconds or longer. This is very important to obtain an accurate result.
9. Record the results to three decimal places as displayed in your case report.
10. Note also in your case report the serial number or the state tag number of the PBT instrument.

11. Remove and discard the clear saliva trap mouthpiece or the white mouthpiece with one-way valve using the plastic bag to handle. The white tube mouthpiece (without one-way valve) can be reused but should be discarded after approximately ten tests or when becoming saturated with moisture or debris after multiple tests.
12. Press the "Set" button and LEAVE in this position until next use.

#### F. Additional Considerations

1. It may take up to five minutes to zero between tests on the PBT. The manufacturer recommends no more than five tests per hour when results are near 0.10. If many low test results (near zero) are performed in a row, then over five tests per hour is acceptable.
2. If the PBT displays "888" this means the battery is low. Contact your local PBT Technician for a battery replacement. The battery can last up to 500 tests.
3. The PBT should be stored where it will not encounter extreme heat or cold
4. Radios should not be transmitted near the PBT when in operation. These signals may bias the test results. Watch for the continuous smooth rise in the results.
5. The PBT instruments must be tested at least every 6 months by the responsible technician. It is very important that you provide your instrument to the technician so this can be done and records kept. This will be important if your results are to be admissible in a probable cause hearing. The instruments can be checked more frequently by the technician and you may want to have this done following a significant arrest where the PBT will be critical evidence. The technician will use a gas standard. Simulators are not to be used to certify PBT's any longer.
6. Generally, the PBT test results alone should not be the sole basis for the decision to arrest. However, there may be the circumstance (e.g., accident) where it is the sole basis for probable cause.
7. A negative PBT test result can help add to the probable cause to believe that the subject is on some other drug and a Drug Recognition Expert (DRE) should be called.
8. Do not allow any samples to be provided by an individual who has been smoking within three minutes. Smoke will ruin the fuel cell costing nearly \$250. When properly used, the fuel cell should last up to 3000 tests.

9. The most common problems encountered with PBT use are:
  - a. Allowing someone to smoke and then blowing into the PBT within 3 minutes
  - b. Breaking off the mouthpiece tip on top of the instrument
  - c. Leaving the PBT on the vehicle and then driving off and losing it or driving over it
  - d. Failing to keep the READ button depressed long enough to obtain a peak value
  - e. Not obtaining a deep-lung sample

#### G. Practical Tests

1. Set up simulators separate from the BAC Datamaster instrument area for doing the PBT practical tests. Remember: **DO NOT USE SIMULATORS ATTACHED TO DATAMASTER INSTRUMENTS TO CERTIFY PBT'S.** Simulators are not approved for PBT's and this interferes with integrity of the Datamaster.
2. Have either the student or a partner provide samples using the simulators.
3. When using simulators, have student hold PBT on side or upside down to keep water from entering the fuel cell. Demonstrate this to students.
4. Do at least one practice and one practical test during the course of doing the BAC Datamaster practice tests. Record the final result along with the PBT serial number or state tag number to the course instructor.

#### E. Breath intake port

1. This is easily broken off and care must be taken when attaching and removing mouthpieces

#### F. Mouthpiece

1. Two mouthpiece arrangement - white tube mouthpiece and clear saliva trap mouthpiece



### III. REVIEW OF OPERATION PROCEDURES

#### A. Introduction

1. The PBT is not the evidential breath alcohol test under the implied consent statute since it is voluntary and typically performed prior to arrest
2. Although many agencies have been using these instruments they have recently been approved in the Washington Administrative Code for probable cause purposes.
3. Only the Alco-Sensor III PBT instrument is approved in the Washington Administrative Code. If your agency uses a different PBT instrument you must contact the State Toxicology Laboratory to determine its acceptability for use.

#### B. Steps of operation

1. Check the temperature display - should be 20-36<sup>0</sup> C
- 2 . Push the "Set" button
3. Push and hold the "Read" button and confirm that the displayed results go down to 0.003 or less and remain there. If not, push the "Set" button again and then push and hold the "Read" button. You may have to wait a few minutes for this to be accomplished.
4. Push the "Set" button
5. Attach the mouthpiece in one of the following configurations:
  - a. Attach the clear mouthpiece with the saliva trap to the straight white tube first. Then attach the straight white tube to the instrument receptacle.
  - b. Attach the straight white mouthpiece with one-way valve so that the air will flow in the proper direction.
  - c. Use a new mouthpiece with each sample provided to the instrument.
6. Have subject blow into the clear saliva trap mouthpiece until a full exhalation deep lung sample is obtained and then press the "Read" button while the subject is still blowing. This will obtain that last sample of breath. Keep subject at a safe distance and remember officer safety issues. Monitor air flow with back of hand to ensure subject does not suck back.

7. Keep the "Read" button depressed and observe the displayed result until the peak value is obtained. This may take from 45 to 90 seconds. This is very important to obtain an accurate result.
8. Record the results to three decimal places as displayed in your case report.
9. Note also in your case report the serial or state tag number of the PBT instrument.
10. Remove and discard the clear saliva trap mouthpiece. The white tube mouthpiece can be reused but should be discarded after approximately ten tests.
11. Press the "Set" button and leave in this position until next use.
12. A zero PBT result may help establish probable cause for other drugs and allow one to obtain a blood sample. A DRE might be called if available.

#### IV. THEORY OF OPERATION

##### A. The instrument uses a fuel cell to detect and quantify ethyl alcohol

1. The fuel cell oxidizes the alcohol which releases electrons available for an electrical current flow that is proportional to the concentration of alcohol
2. The current flow is measured and becomes an index of alcohol concentration
3. The results are shown on a digital display

#### V. GAS STANDARD EQUIPMENT NOMENCLATURE AND USE

##### A. Nomenclature

1. Gas tank
  - a. contains known concentration of ethanol (a #2 type of gas)
  - b. concentrations usually near 0.082 g/210L
  - c. store tank in the upright position
  - d. tanks are not refilled, may be able to dispose of through local fire department
2. Regulator
  - a. after attaching regulator observe pressure, if below 3 then replace the tank

- b. remove the regulator when transporting
- 3. True Cal Device
  - a. an instrument that monitors barometric pressure and provides a corrected estimate of the ethanol concentration

## VI. CERTIFICATION PROTOCOL

- A. Refer to Alco-Sensor III (PBT) Certification Protocol in Policy/Procedure manual. The steps are as follows:
  - 1. Obtain certified 0.082 g/210L ( $\nabla$  0.002) gas standards.
  - 2. If using a Tru-Cal device, this will determine the estimated concentration. This will be the value that the PBT will be certified and/or calibrated to. If not using a Tru-Cal device, refer to the altitude chart on the side of the tank for the correct reference value.
  - 3. Verify the PBT temperature is between 20<sup>0</sup> and 36<sup>0</sup> C.
  - 4. Push SET button. Push and hold the READ button.
  - 5. The digits should go to 0.003 or less within 10 seconds. If the digits do not go to 0.003 or less, push SET, wait one minute and push and hold the READ button again.
  - 6. Attach mouthpiece to the gas standard source and provide the sample. Allow 3 to 5 seconds of gas flow.
  - 7. Push and hold the READ button while the sample is still being provided. Continue to hold the READ button until the result stabilizes.
  - 8. Observe digital reading to determine if acceptably accurate.
    - a. If the results are within  $\nabla$  0.010 g/210L from the reference value for the gas standard, the PBT is properly calibrated and acceptably accurate.
    - b. If the result is not within the acceptable limits, proceed to step 10.
  - 9. Complete the appropriate information on the Alco-Sensor III (PBT) Certification Record, recording the results to three decimal places.

#### 10. Recalibrating the PBT instrument

- a. If the result is outside  $\pm 0.010$  g/210L of the reference value, first zero the instrument to 0.003 or less, then turn the calibration screw clockwise two full turns.
- b. Re-introduce the gas standard and while holding the READ button, turn counter-clockwise slowly to value on gas standard. Avoid adjusting to below the reference gas standard value during this procedure.
- c. Repeat steps 1 through 10 as often as necessary to obtain results within the acceptable range.
- d. If results are acceptable, only one test is necessary.

11. The PBT instruments are to be certified at least every 6 months.

### VII. RECORD KEEPING

- A. Complete Alco-Sensor III (PBT) Certification Record
- B. Record results to three decimal places.
- C. Be sure to note if instrument was recalibrated

### VIII. PBT TROUBLESHOOTING AND REPAIRS

- A. If display reads "888" the battery needs replacement
  1. The battery should be tested with a multimeter at the time of each certification. You do not have to remove the battery. Just put leads across the battery and you should observe at least 9.0 volts. If less than 9.0 replace battery.

## IX. ADDITIONAL CONSIDERATIONS

- A. There should be at least five minutes allowed between tests on the PBT
- B. The PBT should be stored where it will not encounter extreme heat or cold
- C. Radios should not be transmitted near the PBT when in operation. These signals may bias the test results.

## X. PRACTICAL AND WRITTEN EXAMS

- A. Have student use gas standard devices to test a PBT and properly record information
- B. Written Exam (must obtain 80%)

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